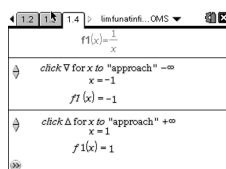


2.2 Limits Involving Infinity

Use the document to investigate the limit numerically. Then add a graph to illustrate the limit.



Aug 30-8:35 PM

definition of horizontal asymptote

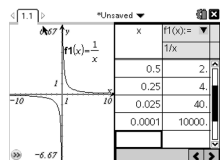
Find the horizontal asymptotes

$$f(x) = \frac{\sin(x)}{x}$$

$$f(x) = \frac{x}{\sqrt{x^2 + 1}}$$

Aug 30-8:55 PM

Estimate $\lim_{x \rightarrow 0} \frac{1}{x}$



Aug 30-8:58 PM

definition of vertical asymptote

Find the vertical asymptotes

$$f(x) = \frac{1}{x^2}$$

$$f(x) = \frac{2}{x-1}$$

Aug 30-9:10 PM

End behavior models

$$f(x) = \frac{x^2 - 1}{x + 2}$$

Graph $y=f(x)$ in the following windows:

$[-15, 15] \times [-20, 10]$

$[-1500, 1500] \times [-2000, 1000]$

Suggest an end-behavior model for $f(x)$

Aug 30-9:16 PM

Find end behavior models

$$y = \frac{2x^5 + x^4 - x^2 + 1}{3x^2 - 5x + 7}$$

$$y = \frac{x+1}{3x^2 - 4x + 5}$$

Aug 30-9:24 PM